

Amendment "B" page 2 of 9  
10/083,411

DOCKET NO. 01-926  
72242 (6653)

Amendments to the Claims:

① 1. (currently amended): A method of integrated circuit design comprising steps of:

- (a) placing and wiring an integrated circuit design;
- (b) generating a slack graph of to identify critical paths in the [[an]] integrated circuit design; and
- (c) identifying bottlenecks in the critical paths. removing non-critical paths from the slack graph;
- (d) calculating a corresponding traversal weight for each edge in the critical paths;
- (e) assigning a net weight value to each edge in the critical paths from the corresponding traversal weight; and
- (f) replacing and wiring nets according to the net weight value to eliminate the critical paths from the integrated circuit design.

2-8. (canceled)

9. (currently amended): A computer-readable medium having stored thereon a plurality of instructions, the plurality of instructions including instructions which, when executed by a processor, cause the processor to:

- (a) place and wire an integrated circuit design;
- (b) generate a slack graph of to identify critical paths in the [[an]] integrated circuit design; and
- (c) identify bottlenecks in the critical paths. calculate traversal weights for edges in the critical paths;
- (d) assign a net weight value from the traversal weights;

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b1  
Amendment "B" page 3 of 9  
10/083,411

DOCKET NO. 01-926  
72242 (6653)

and

~~d) re-place and wire nets according to the net weight value.~~

10-18. (canceled)

19. (new) The method of Claim 1 wherein step (c) comprises determining which nets in the slack graph include more critical paths when compared to other nets in the slack graph.

20. (new) The method of Claim 19 further comprising a step of (d) assigning a higher priority to reducing path edge delays at the bottlenecks than to other path edge delays.

21. (new) The method of Claim 19 wherein step (c) comprises a step of: (c1) calculating a forward node weight for each corresponding node wherein the forward node weight is equal to a minimum forward edge weight of all incoming edges to the corresponding node.

22. (new) The method of Claim 21 wherein step (c) comprises a step of: (c2) calculating a forward edge weight for each outgoing edge wherein the forward edge weight is equal to the forward node weight of the corresponding node plus a number of outgoing edges from the corresponding node minus one.

23. (new) The method of Claim 22 wherein step (c) comprises a step of: (c3) calculating a reverse node weight for each corresponding node wherein the reverse node weight is equal to a minimum reverse edge weight of all outgoing edges from the

BEST AVAILABLE COPY

Amendment "B" page 4 of 9  
10/083,411

DOCKET NO. 01-926  
72242 (6653)

corresponding node.

24. (new) The method of Claim 23 wherein step (c) comprises a step of: (c4) calculating a reverse edge weight for each incoming edge wherein the reverse edge weight is equal to the reverse node weight of the corresponding node plus a number of incoming edges to the corresponding node minus one.

25. (new) The method of Claim 24 wherein step (c) comprises a step of: (c5) summing the forward edge weight and the reverse edge weight for each edge in the slack graph.

26. (new) The method of Claim 25 wherein step (c) comprises a step of: (c6) setting a net weight value of a corresponding net equal to a minimum value of the sum of the forward edge weight and the reverse edge weight associated with each edge so that a relatively low net weight value indicates that the corresponding net belongs to a bottleneck.

27. (new) The method of Claim 1 wherein step (c) comprises determining which nets in the slack graph include more critical paths when compared to other nets in the slack graph.

28. (new) The computer-readable medium of Claim 9 further comprising a step of: (d) assigning a higher priority to reducing path edge delays at the bottlenecks than to other path edge delays.

29. (new) The computer-readable medium of Claim 9

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*b1*  
Amendment "B" page 5 of 9  
10/083,411

DOCKET NO. 01-926  
72242(6653)

wherein step (c) comprises a step of: (c1) calculating a forward node weight for each corresponding node wherein the forward node weight is equal to a minimum forward edge weight of all incoming edges to the corresponding node.

30. (new) The computer-readable medium of Claim 29 wherein step (c) comprises a step of: (c2) calculating a forward edge weight for each outgoing edge wherein the forward edge weight is equal to the forward node weight of the corresponding node plus a number of outgoing edges from the corresponding node minus one.

31. (new) The computer-readable medium of Claim 30 wherein step (c) comprises a step of: (c3) calculating a reverse node weight for each corresponding node wherein the reverse node weight is equal to a minimum reverse edge weight of all outgoing edges from the corresponding node.

32. (new) The computer-readable medium of Claim 31 wherein step (c) comprises a step of: (c4) calculating a reverse edge weight for each incoming edge wherein the reverse edge weight is equal to the reverse node weight of the corresponding node plus a number of incoming edges to the corresponding node minus one.

33. (new) The computer-readable medium of Claim 32 wherein step (c) comprises a step of: (c5) summing the forward edge weight and the reverse edge weight for each edge in the slack graph.

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Amendment "B" page 6 of 9  
10/083,411

DOCKET NO. 01-926  
72242 (6653)

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34. (new) The computer-readable medium of Claim 33 wherein step (c) comprises a step of: (c6) setting a net weight value of a corresponding net equal to a minimum value of the sum of the forward edge weight and the reverse edge weight associated with each edge so that a relatively low net weight value indicates that the corresponding net belongs to a bottleneck.

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